

Appl. Serial No.: 10/757,754
Amendment dated May 2, 2005
Reply to Office action of February 2, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Currently amended) A tomography scanner system, comprising:
 - a base;
 - a gantry supported on the base and including,
 - an outer, non-rotating support ring,
 - an inner rotatable component ring supported for rotation on the support ring about a rotation axis of the gantry;
 - an x-ray source and an x-ray detector array secured to the rotatable component ring for rotation with the component ring; and
 - an x-ray containment shield enclosing the x-ray source and the x-ray detector array and secured to the rotatable component ring for rotation with the component ring;
 - a first, non-rotating x-ray containment tunnel extending from an open end to the rotating x-ray containment shield coaxial with the rotation axis of the gantry, and a second, non-rotating x-ray containment tunnel extending from the rotating x-ray containment shield to an open end coaxial with the rotation axis of the gantry; and

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a continuous conveyor belt including a forward path extending through the tunnels and the gantry and a return path extending outside the tunnels and the gantry.

2. A tomography scanner system according to claim 1, wherein the component ring includes a mounting face extending perpendicular to the rotation axis and the x-ray source, the x-ray detector array and the x-ray containment shield are secured to the mounting face of the component ring.

3. A tomography scanner system according to claim 1, wherein a motor is mounted on the support ring and operatively connected to the component ring through a belt received in an outer circumferential groove of the component ring.

4. (Currently amended) A tomography scanner system according to claim 1, wherein the x-ray source is a dual energy, helical cone beam, multi-slice CT system x-ray source.

5. (Currently amended) A tomography scanner system according to claim 1, wherein the x-ray detector is a high efficiency, wide dynamic range, solid state, two dimensional x-ray detector array.

6. A tomography scanner system according to claim 1, further comprising a data acquisition system for receiving and processing signals generated by the detector array, and an x-ray tube control system for supplying power to, and controlling the operation of, the x-ray source.

7. A tomography scanner system according to claim 6, further comprising a computer for processing the output of the data acquisition system and for generating the necessary signals for operating and controlling the system.

8. A tomography scanner system according to claim 1, wherein the rotating x-ray containment shield is lined with a material absorbent of x-ray energy incident.

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9. A tomography scanner system according to claim 8, wherein the material absorbent of x-ray energy incident comprises lead.
10. (Canceled) A tomography scanner system according to claim 1, further comprising a first, non-rotating x-ray containment tunnel extending from an open end to the rotating x-ray containment shield coaxial with the rotation axis of the gantry, and a second, non-rotating x-ray containment tunnel extending from the rotating x-ray containment shield to an open end coaxial with the rotation axis of the gantry.
11. (Currently amended) A tomography scanner system according to claim ~~10~~ 1, wherein the tunnels are lined with a material absorbent of x-ray energy incident.
12. A tomography scanner system according to claim 11, wherein the material absorbent of x-ray energy incident comprises lead.
13. (Currently amended) A tomography scanner system according to claim ~~10~~ 1, wherein the open ends of the x-ray containment tunnels include curtains of x-ray absorbent material.
14. (Currently amended) A tomography scanner system according to claim ~~10~~ 1, wherein the non-rotating x-ray containment tunnels are connected to the rotatable x-ray containment shield through non-rotating fixed rings, wherein the x-ray containment shield is rotatable with respect to the fixed rings.
15. A tomography scanner system according to claim 14, wherein the non-rotating fixed rings include x-ray absorbent material.

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16. A tomography scanner system according to claim 1, wherein the rotating x-ray containment shield includes an annular main body defining diametrically opposed x-ray source and x-ray detector apertures, and an x-ray source housing positioned over the x-ray source aperture and supporting and containing the x-ray source, and an x-ray detector housing positioned over the x-ray detector aperture and supporting and containing the x-ray detector.

17. A tomography scanner system according to claim 1, wherein the rotating x-ray containment shield comprises sheet metal lined with lead sheeting.

18. (Canceled) A tomography scanner system according to claim 1, further comprising a conveyor system extending within the tunnels and through the gantry between the open ends of the tunnels so that a piece of baggage placed on the conveyor system at one of the open ends will be carried through the gantry to the other of the open ends.

19. (Currently amended) A tomography scanner system according to claim 18, wherein the conveyor system includes a continuous conveyor belt supported by pulleys and at least one motor for rotating the pulleys to move the conveyor belt.

20. (Canceled) A tomography scanner system according to claim 18, wherein the continuous conveyor belt passes through the gantry only once.

21. (Currently amended) A tomography scanner system according to claim 19, wherein the conveyor system also includes further comprising skid plates extending between the pulleys and supporting the conveyor belt.

22. A tomography scanner system according to claim 21, wherein the skid plates include grooves which slidingly receive ridges of the conveyor belt.

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23. A tomography scanner system according to claim 21, wherein the skid plates include ridges slidably received in grooves of the conveyor belt.

24. A tomography scanner system according to claim 19, wherein the pulleys include grooves which receive ridges of the conveyor belt.